SFUND RECORDS CTR
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CITY OF MOUNTAIN VIEW

INTER-OFFICE MEMORANDUM

DATE: March 24, 1961

SFUND RECORDS CTR
2807-03136

TO: Blaine L. Harrison, Assistant Director of Public Works

FROM: M. P. Anderson, Superintendent Sewage Treatment Plant

RE: TRICHLORETHYLENE

Trichlorethylene, also known among the trade as TCE, Trichlor, and several other names, is used by many of our new electronic plants. TCE is a noninflammable solvent which is used in the various plants mostly as a de-greasing solvent. The material is heavy, has a specific gravity of about 1.4, is almost insoluble in water and the vapors are somewhat toxic. The material has partly the characteristics of carbon tetrachloride and partly the characteristics of chloroform. It is from the characteristics of chloroform that it is of particular harm to the micro-organisms in the Digester at the Sewage Treatment Plant.

The plants in Mountain View that are now using TCE are the Fairchild Semiconductor Corporation and the Rheem Semiconductor Corporation. Both of these plants have put in equipment, and rather costly equipment, for separating it out and recovering it, and also neutralizing equipment for neutralizing their acids, which they are dropping into the sewer. The design of this equipment is good. However, in actual practice, whether it is due to error in operation and some unusual condition, the TCE occasionally spills over into the sewer.

When the material comes to the plant it is fairly easy to detect, since it has a distinctive and rather pleasant odor, but we can not tell how much is present. Since the TCE is heavy and quite insoluble in water, it settles to the bottom of the Clarifier with the sludge and is pumped over to the Digester. It is in the Digester where it does the most harm. Since it is a toxic material and a germicide, it kills off the anaerobic microorganisms in the Digester and thus hinders the digestion of the organic sludge matter which is pumped into the Digester.

There is no way that the material can be neutralized or made harmless. When it gets into the Digester our only corrective measure is to get rid of it as soon as possible. This can be done by allowing the Digester to remain quiet for 2 or 3 days and then draining, stirring it up, allowing another quiet period and drain again. This has worked reasonably well in spite of the large amount of grit in the Digester. If the harmful effects of TCE proceeds too far, as it did about 2 years ago, most of our anaerobic microorganisms were apparently killed, and it was then necessary to restart the Digester and rebuild a colony of anaerobic microorganisms. This is very similar to the procedure that we would use in restarting a new Digester; that is, by regulating the feed, warming the Digester, and using lime to neutralize the effect of the acid formed by the partially digested sludge.

The present City Ordinance prohibits the dumping into the sewer of any material or solvent which is harmful to our process. The electronic plants have

been very helpful and are making an earnest effort to prevent any TCE from entering the sewage. They have made provisions which should take care of it but, as mentioned above, occasionally something goes wrong. It seems to be a matter of Sewage Treatment plant personnel, and the sewer cleaning employees being constantly alert in policing the waste additions to the sewage, and also in keeping the good will of the manufacturers so they will cooperate.

Another partial remedy that might be employed is to use a slow-moving, mechanical type grit removal equipment at the Plant which will aid in removing the TCE before it enters the Clarifier. From observations that have been made a pneumatic type grit removal equipment does not appear to be as satisfactory.

It might also be of interest to note that we are not the only plant which is having trouble. Palo Alto has been in difficulty, I understand, for over 3 years, and are still in difficulty. I recently heard that San Carlos is also in difficulty, presumably from the same source.

H. P. ANDERSON

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